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Palese et al.
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WHAT IS CLAIMED IS:

1. A recombinant influenza virus the genome of which contains a region encoding a tumor-associated antigen.

2. The recombinant influenza virus of Claim 1 in which the region is contained within a structural gene of influenza virus.

3. The recombinant influenza virus of Claim 2 in which the structural gene is HA, NA, NP or M.

4. The recombinant influenza virus of Claim 1 in which the region encoding the tumor-associated antigen is in a bicistronic arrangement with an influenza virus gene.

5. The recombinant influenza virus of Claim 1 which is an attenuated virus.

6. An immunogenic formulation comprising an effective amount of the recombinant influenza virus of Claim 1, 2, 3, 4 or 5 and a pharmaceutically acceptable carrier.

7. The immunogenic formulation of Claim 6 in which the recombinant influenza virus is a live virus.

8. The immunogenic formulation of Claim 6 in which the recombinant influenza virus is a killed virus.

9. A vaccine formulation comprising an effective amount of the recombinant influenza virus of Claim 1, 2, 3, 4 or 5 and a pharmaceutically acceptable carrier.

10. The vaccine formulation of Claim 9 in which the recombinant influenza virus is a live virus.

11. The vaccine formulation of Claim 9 in which the recombinant influenza virus is a killed virus.

12. A method for immunization of a tumor-bearing patient, comprising administering the immunogenic formulation of Claim 6 to the patient bearing a tumor which expresses the tumor-associated antigen.

13. The method of Claim 12 in which the immunogenic formulation comprises a live recombinant influenza virus.

14. The method of Claim 12 in which the immunogenic formulation comprises a killed recombinant influenza virus.

15. The method of Claim 12 further comprising the subsequent administration of a booster preparation.

16. The method of Claim 12 in which the booster preparation is an immunogenic formulation comprising an influenza virus having a serotype that differs from that of the recombinant influenza virus used in the initial immunization.

17. The method of Claim 12 in which the booster preparation is an immunogenic formulation comprising a recombinant virus that differs from influenza virus.

18. The method of Claim 17 in which the recombinant virus is a vaccinia virus.

19. A method for immunizing a tumor-free patient, comprising administering the immunogenic formulation of Claim 6 to the patient.